

2B.4 Underground Management of FGD By-Products for Subsidence Control

Yoginder P. Chugh (chugh@engr.siu.edu; 618-536-6637)

Deepak Dutta

Southern Illinois University at Carbondale

Mining and Mineral Resources Engineering

Mail Code 6603

Carbondale, IL 62901

Scott Renninger (srenni@fetc.doe.gov; 304-285-4790)

Federal Energy Technology Center

P.O. Box 880

Morgantown, WV 26507-0880

Abstract

In collaboration with the U.S. Department of Energy, the Mining and Mineral Resources Engineering Department of Southern Illinois University at Carbondale has developed underground paste backfilling technology for controlling surface subsidence. In the Summer of 1996, approximately 8,000 tons of high density coal combustion by-products based pastes (>70% solids) were blind backfilled underground through a surface bore hole to fill a room-and-pillar panel at Peabody #10 mine. Observations through a borehole camera confirmed that the grout must have moved at least 200 ft. from the injection point. Cores obtained for the placed materials indicated strength and stiffness in the range of 500-600 psi and 30,000-35,000 psi, respectively, after 60 days.